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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,477

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Jens Uwe Brandt

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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

FULLER, ROBERT EDWARD

ART UNIT

PAPER NUMBER

3676

NOTIFICATION DATE

DELIVERY MODE

02/24/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No. 10/595,477	Applicant(s) BRANDT ET AL.	
	Examiner ROBERT E. FULLER	Art Unit 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16,17 and 19-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16,17 and 19-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's submission, filed November 18, 2009, has been carefully considered. Examiner has withdrawn the claim objection and the rejection under 35 U.S.C. 112 set forth in the previous Office Action. However, examiner has added a new rejection under 35 U.S.C. 112. With respect to the prior art, examiner has withdrawn the rejections set forth in the previous Office Action and has returned to the rejection made in the Office Action mailed February 11, 2009 based on the Stark et al. reference.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 36 is currently dependent on claim 22, however, claim 36 contains the limitation "the additional separator" for which there is no antecedent basis. The claim is being examined as if dependent on claim 25.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 16, 17, 19, 22-24, 28-35, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark et al. (US 7,077,207).

With regard to claim 16, Stark discloses a method for delivering a multi-phase mixture from a well using a displacement pump (3), comprising splitting off a partial liquid flow from a main delivery flow (within separator 9) and guiding the split partial liquid flow (via outer tubing 21) to a high-pressure side of at least one ejector pump (7) arranged on a suction side of the displacement pump as an auxiliary delivery device.

Stark's separator is distinct from the displacement pump, therefore the partial liquid flow is split off before the flow reaches the displacement pump (i.e. on the suction side of the displacement pump, rather than the pressure side). Stark also does not disclose pumping the multi-phase mixture through the displacement pump, since the gas is removed by the separator before it reaches the pump.

Rohlfing discloses a screw-type pump which is a combined displacement pump and separator.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have combined the displacement pump and separator

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of Stark into a single housing, as shown by Rohlfing, in order to have reduced the space on the well site occupied by the pump and separator, and because it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893). Furthermore, if Stark's separator and displacement pump were combined, as suggested by Rohlfing, then the multi-phase mixture would be pumped through the displacement pump, and the partial liquid flow would be split off on the pressure side of the pump.

With regard to claims 17 and 29, Stark's ejector pump (7) is in the well.

With regard to claims 19 and 24, Stark fails to disclose feeding a partial volume flow of the separated liquid phase in a portioned manner to a suction side of the displacement pump via a short-circuited line. However, Rohlfing discloses a short-circuited line (14) through which a portioned partial liquid flow is fed to the suction side of the pump (see column 2, lines 56-64).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Stark so that a portioned amount of the partial liquid flow was fed back into the suction side of the displacement pump, in order to have ensured permanent "wetting of shaft seals" and "adequate lubrication of shaft seals" (column 3, lines 18-20).

With regard to claim 22, Stark discloses a pump installation comprising a displacement pump (3) for delivering multi-phase mixtures with a pump housing in which a pressure chamber is provided, at least one separation device (9) to divide a gas

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phase from a liquid phase, a suction line (inner tube 21) configured to open out into a well, and a feed line (outer tube 21) connecting the pressure chamber of the displacement pump with a high-pressure side of at least one ejector pump (7) arranged on a suction side in a delivery direction of the displacement pump and which guides the separated liquid phase to the ejector pump.

Stark fails to disclose the separation device being located within a pressure chamber of the displacement pump.

Rohlfing discloses a screw-type pump which is a combined displacement pump and separator.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have combined the displacement pump and separator of Stark into a single housing, as shown by Rohlfing, in order to have reduced the space on the well site occupied by the pump and separator, and because it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

With regard to claim 23, Stark discloses the ejector pump being arranged where the suction line opens out into the well (see Fig. 1).

With regard to claim 28, Stark as modified by Rohlfing discloses a screw pump, since Rohlfing's pump is a screw pump.

With regard to claim 30, Stark's ejector pump (7) is at an end of the suction line (see Fig. 1).

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With regard to claims 31, 32, 37 and 38, Stark discloses using a carrier fluid. However, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have not used a carrier fluid, provided that the liquid phase of the formation fluid was plentiful enough to drive the production process. One of ordinary skill would be able to recognize whether or not a carrier fluid was necessary. Since there are a finite number of identified, predictable solutions (i.e. using a carrier fluid or not using a carrier fluid) it would have been obvious to try not using a carrier fluid if one of ordinary skill deemed it unnecessary to use a carrier fluid, since the use of a carrier fluid involves additional expense. *US 2,651,259 (Brush) provides an example of a system similar to Stark's that does not use a carrier fluid. Brush discloses a well pumping system, similar to that of Stark, which pumps water from a well, using the well water as a carrier fluid. A multi-phase mixture (water and air) is pumped up through pipe 31 into tank 33. Air is separated from the water within tank 33, then part of the water stream is sent through pipe 21 back into an ejector pump 12, to power the ejector pump.*

With regard to claim 33, this claim is rejected using the same rationale as applied above to claims 17, 19, and 31, as this claim is essentially a combination of each of those claims.

With regard to claim 34, the liquid phase of the mixture is used to operate the ejector pump (via outer tubing 21).

With regard to claim 35, the ejector (7) has no moving members.

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6. Claims 20, 25, 26, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark et al. in view of Rohlfing as applied to claims 16 and 22 above, and further in view of Schubert et al. (US 5,302,294).

Stark fails to disclose the use of an additional separator.

Schubert discloses a gas-oil separation system comprising multiple separator units (12, 14, 16).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have used an additional separator (as taught by Schubert---see column 1, lines 26-30) in the system of Stark, in order to have ensured complete stripping of the gas from the liquid phase, and furthermore, because it has been held that mere duplication of the essential working parts of a device (i.e. the duplication of the separator) involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Further, specifically with regard to claim 26, it would have also been obvious to feed the gas output from the additional separator into the same location as the gas output from the first separator, i.e. to a pressure side of the displacement pump.

Further, specifically with regard to claim 36, this claim is rejected using the same rationale as applied above to claims 23, 24, 26, and 35, as this claim is essentially a combination of each of those claims.

7. Claims 21 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark et al. in view of Rohlfing as applied to claims 16 and 22 above, and further in view of Rivas (US 6,260,627).

Stark et al. in view of Rohlfing fails to disclose a booster pump.

Rivas discloses a wellbore production system comprising a main pump (14) and a booster pump (44).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have added a further pump (i.e. a booster pump) to the assembly of Stark, in order to have compensated for head losses inherent in pumping fluids over long distances.

Response to Arguments

8. Applicant's arguments with respect to claims 16 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Though the arguments filed November 18, 2009, are now moot, examiner will respond to the arguments set forth in the response filed May 11, 2009 directed to the combination of Stark and Rohlfing. In those remarks, applicant argued that "Stark does not teach or suggest 1) a displacement pump for delivering multiphase mixtures; 2) at least one separation device to divide a gas phase from a liquid phase in the pressure chamber; and 3) at least one ejector pump arranged on a suction side in a delivery direction of the displacement pump." Examiner respectfully disagrees, and asserts that Stark and Rohlfing, *in combination*, teach all of those limitations. When Stark's pump and separator are combined by using Rohlfing's screw pump/separator, then the pump does deliver a multi-phase mixture. The separation of phases will occur within the pressure chamber of the displacement pump, since this is how Rohlfing's combined pump/separator works. The ejector pump is arranged on a suction side of the

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displacement pump, since the ejector pump will feed directly to Rohlfing's combined pump/separator.

Applicant further argues that Stark and Rohlfing cannot be combined, since even though Rohlfing's device is capable of splitting off gas and liquid phases, Rohlfing actually discloses recombining the gas and liquid phases. Examiner respectfully traverses this argument. Rohlfing is brought in merely to teach combining a pump and separator unit. Since applicant admits that "Rohlfing is operable to perform a separation of gas and liquid phases", examiner asserts that one of ordinary skill would have understood how to connect the pump/separator of Rohlfing into Stark's system in such a way that the functionality of Stark's system is maintained.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT E. FULLER whose telephone number is (571)272-0419. The examiner can normally be reached on Monday thru Friday from 8:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shane Bomar/
Primary Examiner, Art Unit 3676

02/17/2010
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